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Highlights

Highlights of GAO-10-887, a report to the Chairman, Committee on Homeland Security, House of Representatives

September 2010

SUPPLY CHAIN SECURITY

DHS Should Test and Evaluate Container Security Technologies Consistent with All Identified Operational Scenarios to Ensure the Technologies Will Function as Intended

Why GAO Did This Study

Cargo containers could be used to transport unlawful cargo, including weapons of mass destruction, illicit arms, stowaways, and illegal narcotics into the United States. Within the Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP) is responsible for container security. To enhance container security, CBP has partnered with DHS's Science and Technology (S&T) Directorate to develop performance standards—requirements that must be met by products to ensure they will function as intended—for container security technologies. After successful completion of testing, S&T plans to deliver performance standards to DHS's Office of Policy Development and CBP. As requested, this report addresses (1) the extent to which DHS has made progress in conducting research and development and defining performance standards for the technologies, and (2) the remaining steps and challenges, if any, DHS could face in implementing the technologies. GAO, among other things, reviewed master test plans for S&T's four ongoing container security technology projects, and interviewed DHS officials.

What GAO Recommends

GAO recommends that DHS test and evaluate the container security technologies consistent with all the operational scenarios DHS identified for potential implementation. DHS concurred with our recommendation.

View GAO-10-887 or key components.
For more information, contact Stephen Caldwell at (202) 512-9610 or caldwells@gao.gov or Timothy Persons at (202) 512-6412 or personst@gao.gov.

What GAO Found

DHS has conducted research and development for four container security technology projects, but has not yet developed performance standards for them. From 2004 through 2009, S&T spent approximately $60 million and made varying levels of progress in the research and development of its four container security technology projects. These projects include the Advanced Container Security Device (ACSD), to detect intrusion on all six sides of a container; the Container Security Device (CSD), to detect the opening or removal of container doors; the Hybrid Composite Container, a lightweight container with an embedded sensor grid to detect intrusion on all six sides of the container; and the Marine Asset Tag Tracking System (MATTS), to track containers. The ACSD and Hybrid Composite Container technologies have not yet completed laboratory testing, but the CSD and MATTS are proceeding to testing in an operational environment, which will determine if the technologies can operate in the global supply chain—the flow of goods from manufacturers to retailers. S&T's master plans for conducting operational environment testing, however, do not reflect all of the operational scenarios the Office of Policy Development and CBP are considering for implementation. According to DHS guidance, before S&T can provide performance standards to the Office of Policy Development and CBP, the technologies are to have been proven to work in their final form and under expected operational conditions. Until the container security technologies are tested and evaluated consistent with all of the operational scenarios DHS identified for potential implementation, S&T cannot provide reasonable assurance that the technologies will effectively function as the Office of Policy Development and CBP intend to implement them.

If S&T determines that the container security technologies are mature enough to provide performance standards for these technologies to the Office of Policy Development and CBP, key steps and challenges remain before implementation can occur. These key steps involve (1) obtaining support from the trade industry and international partners, (2) developing a concept of operations (CONOPS) detailing how the technologies are to be deployed, and (3) certifying the technologies for use. The Office of Policy Development and CBP plan to take these steps if and when S&T provides performance standards.

Description of DHS S&T's Four Container Security Projects

Project name	Project description and goal
ACSD	Develop a device that can detect and report container intrusion on all six sides of a container.
CSD	Develop a device that can detect and report the opening or removal of container doors.
Hybrid Composite Container	Develop a composite container with embedded security sensors to detect intrusion on all six sides.
MATTS	Establish a system to track containers, and increase the range that CSDs and ACSDs can communicate.

Source: GAO analysis of DHS S&T information.